



# Wind-Storage Enhanced Technologies on the Grid

PIER Staff Workshop

October 3, 2007

California Energy Commission

# Agenda

- Introductions
- Background on PIER Wind & Storage Programs – Motivation
- Renewables & Storage from the Utilities Perspective
- Discussion Session
- Q&A
- Adjourn

# Motivation

- Meet RPS
- Integrate renewables in a sustainable and reliable manner
- Improve transmission and distribution (T&D) reliability, managing intermittency, addressing power quality and adding to resource availability

# Objective

- Information and ideas exchange workshop
- Obtain industry input on current activities and interest using energy storage systems, as well as ways to use storage to better accommodate wind energy generating resources.



# Drivers

- Policies
- Regulatory/Environment
- Market/Economics
- Aging Infrastructure
- Others





# Discussion Questions

- 1. What are the steps necessary to put to practice?**  
Steps might include studies, interconnection concepts and demonstration projects.
- 2. What technologies are available and what is the best approach to feasibly couple storage to accommodate wind generating resources on the grid?**
- 3. What methods and locations would benefit co-managed wind and storage for the benefit of the grid?**
- 4. What are the market, regulatory, business/corporate, contractual barriers and uncertainties?**
- 5. What wind-storage enhancements are needed to establish public confidence in these practices to enable a cleaner, more reliable, diverse and economically sustainable energy future?**
- 6. What additional data is needed to manage and optimize economic operation for the system?**
- 7. How to quantify value of wind and storage enhancements to the grid?**